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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,250	06/22/2000	Fabio M. Chiussi	Chiussi 19-7	7832
26291	7590	04/12/2005	EXAMINER	
MOSER, PATTERSON & SHERIDAN L.L.P. 595 SHREWSBURY AVE, STE 100 FIRST FLOOR SHREWSBURY, NJ 07702			ABELSON, RONALD B	
			ART UNIT	PAPER NUMBER
			2666	

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/599,250

Applicant(s)

CHIUSI ET AL.

Examiner

Ronald Abelson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10, 12-24 and 26-30 is/are rejected.
7) ☒ Claim(s) 11 and 25 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 22 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 9, 10, 12-17, 19-22, and 26-30 rejected under 35 U.S.C. 102(e) as being anticipated by Shinohara (US 6,067,298).

Regarding claims 1, 16, 21, Shinohara teaches a method for transferring data through a packet switch (fig. 1 box 102) while providing differentiated Quality-of-Service QoS (fig. 1: CBR, VBR, ABR, UBR) guarantees to respective traffic flows received at individual inputs of the packet switch (fig. 1 box 21).

Shinohara teaches storing received data packets associated with said traffic flows in a respective input buffer (fig. 1 box 23) wherein each respective input buffer is associated with a particular input of the packet switch (fig. 1 box 21).

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Shinohara teaches grouping said traffic flows within a respective input buffer on at least a QoS guarantee level (fig. 1 box 24 25, CBR, VBR, ABR, UBR, col. 6 line 65 - col. 7 line 2).

Shinohara teaches selecting data packets for transmission to a switch fabric (fig. 1 box 102) according to a first plurality of schedulers (fig. 1 boxes 22, col. 7 lines 6-9). Note, the ATM cell is sent from internal queue (fig. 1 box 23 to the switch fabric (fig. 1 box 102).

Shinohara teaches assigning bandwidth to said selected data packets according to a second plurality of schedulers (fig. 1 boxes 109, col. 7 lines 12-15). Note, by controlling the competition between cell transfer requests, the examiner maintains that the interclass priority control section (fig. 1 box 109) is assigning bandwidth to the selected data packets. Regarding a second plurality of schedulers, a plurality of interclass priority control sections is shown (fig. 8 boxes 109).

Shinohara teaches storing selected data packets in a plurality of output buffers in said switch fabric (fig. 1 box 30, 31, col. 6 lines 10-11). Regarding a plurality of output buffers in said switch fabric, see fig. 8 boxes 30. Shinohara teaches adapting the operation of at least one of said first and

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second schedulers in response to a determination that a utilization level of any output buffer has exceeded a threshold parameter (fig. 1 boxes 30, 102, 20, col. 8 lines 6-20, input buffer module section 20 ceases to transmit cells).

Regarding claim 16, in addition to the limitations previously listed, transmitting data packets to a respective plurality of output buffers (fig. 1, 8 box 31) according to QoS class priority levels (fig. 1 box 32, col. 7 lines 25-28). Note each output buffer module (fig. 1 box 30) contains a plurality of output queues (fig. 1 box 31) wherein each queue corresponds to a specific QoS class (UBR, ABR, VBR, CBR).

Regarding claim 16 and 21, in addition to the limitations previously listed, halting transmissions to any of said plurality of output buffers utilized beyond said threshold parameter (col. 8 lines 6-21).

Regarding claim 21, in addition to the limitations previously listed, a third plurality of schedulers for selecting data packets for transmission to respective output ports (fig. 1 box 113, col. 7 lines 28-33). Regarding a third plurality of

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schedulers, see fig. 8 boxes 113. Note, the output port is located within the interclass priority control section (fig. 1 box 109).

Regarding claim 21, in addition to the limitations previously listed, a plurality of output buffers (fig. 8 boxes 30), coupled to said third plurality of schedulers (fig. 1 box 113, col. 7 lines 28-33), for holding data packets before transmission to output ports.

Regarding claim 2 choosing the data packets to be transmitted out of said plurality of output buffers according to a third plurality of schedulers (fig. 1 box 113, col. 7 lines 28-33). Regarding a third plurality of schedulers, see fig. 8 boxes 113.

Regarding claim 3, grouping comprises the step of grouping said traffic flows according to traffic flow destination and QoS requirements (destination output line and service class type, col. 6 line 65 - col. 7 line 2).

Regarding claim 4, the method of claim 3, wherein said destination comprises an output of an egress port card (fig. 1

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see egress port cards labeled CBR, VBR, ABR, and UBR) coupled to said switch fabric (fig. 1 box 102).

Regarding claim 5, each scheduler in said first plurality of schedulers (fig. 1 boxes 22) is a class-specific per-flow scheduler. Note, each class has a unique flow scheduler (fig. 1 box 22).

Regarding claim 6, each scheduler in said second plurality of schedulers is a per-QoS class port scheduler (fig. 1 box 109, col. 7 lines 12-15). See fig. 1, data from different QoS classes are input into the scheduler (fig. 1 box 109).

Regarding claims 9, 17, 19, applying selective backpressure to respective ingress port cards to prevent further transmission of data packets to any of said respective plurality of output buffers for which the threshold parameter has been exceeded (col. 8 lines 6-20), said plurality of output buffers for which the respective threshold parameter has been exceeded being congested (col. 8 lines 6-7). Regarding the output buffers being congested, the examiner corresponds the total buffer use exceeding a threshold value with the buffers being congested.

Shinohara teaches determining whether said respective threshold level of each of said congested plurality of output buffers continues to be exceeded (fig. 11 box 301, col. 10 line 56 - col. 11 line 4) and resuming transmission to any congested respective plurality of output buffers when each respective said threshold parameter is not exceeded (fig. 11 box 301, col. 10 line 56 - col. 11 line 4).

Regarding claims 10, 20, and 22, each scheduler of said first plurality of schedulers (fig. 1 box 22) resides in ingress port cards (fig. 1 box 20).

Shinohara teaches each scheduler of said second plurality of schedulers (fig. 1 box 109) resides in said ingress port cards (fig. 1 box 20).

Shinohara teaches Shinohara teaches each scheduler of said third plurality of schedulers (fig. 1 box 113) resides in said switch fabric (fig. 1 box 102, 30). Note, the examiner maintains that the core switch (fig. 1 box 102) and output buffer of the core switch (fig. 1 box 30) can be viewed as one unit.

Shinohara teaches said plurality of input buffers (fig. 1 box 20) reside in said ingress port cards. Note, the input buffer (fig. 1 box 20) is an ingress port card.

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Shinohara teaches said plurality of output buffers (fig. 1 box 30) reside in said switch fabric (fig. 1 box 30, 102). Note, the examiner maintains that the core switch (fig. 1 box 102) and output buffer of the core switch (fig. 1 box 30) can be viewed as one unit.

Regarding claim 22, in addition to the limitations previously listed, said output ports (fig. 1 box 113) reside in said switch fabric (fig. 1 box 102, 30).

Shinohara teaches said ingress port cards (fig. 1 box 20) are coupled to the switch fabric (fig. 1 box 102).

Regarding claim 12, the switch fabric (fig. 8 box 102) comprises at least one module having a respective plurality of output buffers (fig. 8 boxes 30).

Regarding claim 13, each of the first plurality of schedulers (fig. 1 box 22) is associated with a respective QoS class (fig. 1 CBR, VBR, ABR, UBR).

Regarding claim 14, each of the plurality of output buffers (fig. 1 box 30) supports aggregated traffic flows of a defined QoS class. Note, fig. 1 box 30 supports traffic classes CBR, VBR, ABR, and UBR.

Regarding claim 15, each of said third plurality of schedulers (fig. 1 box 113) is associated with a respective output of said switch fabric (fig. 1 box 30 see CBR, VBR, ABR, and UBR).

Regarding claim 26, the switch fabric comprises a single module (fig. 1 box 30) with a plurality of output buffers (fig. 1 queues 31).

Regarding claim 27, the switch fabric comprises a multiple modules (fig. 8 boxes 30) with a plurality of output buffers (fig. 8 queues 31).

Regarding claim 28, each of said first plurality of schedulers (fig. 1 box 22) is associated with a respective QoS class of said configured flows. Note, one scheduler (fig. 1 box 22) is associated with each QoS class.

Regarding claim 29, the plurality of output buffers (fig. 1 boxes 31) are coupled to traffic aggregates called QoS channels (fig. 8 box 30, CBR, VBR, ABR, UBR).

Regarding claim 30, each one of said third plurality of schedulers (fig. 1 box 113) is associated with a respective output of the switch fabric (fig. 1 see output 50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 7, 18, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara as applied to claim 1, 16, and 21 above, and further in view of Regache (US 5,579,312).

Although Shinohara teaches a second plurality of schedulers (fig. 1 box 109) for selecting groups of configured traffic flows for transmission of data (fig. 1: CBR, VBR, ABR, UBR), the reference is silent on each of the schedulers being a Guaranteed Bandwidth Scheduler.

Regache teaches a Guaranteed Bandwidth Scheduler based upon minimum bandwidth guarantees (fig. 1, guarantee transmission of cells at a particular rate, col. 5 lines 53-57).

Therefore it would have been obvious to one of ordinary skill in the art, having both Shinohara and Regache before him/her and with the teachings [a] as shown by Shinohara, a method for transferring data through a packet switch while providing differentiates Quality-of-Service QoS guarantees to respective traffic flows, and [b] as shown by Regache, a Guaranteed Bandwidth Scheduler based upon minimum bandwidth guarantees, to be motivated to modify the system of Shinohara to incorporate within the second schedulers the Guaranteed Bandwidth Scheduler algorithm of Regache. This modification can be performed in software. This would improve the system of

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Shinohara by ensuring an equitable distribution of bandwidth to each of the QoS classes.

6. Claims 8 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara as applied to claims 1 and 21 above, and further in view of Regache (US 5,579,312).

Although Shinohara teaches a third plurality of schedulers (fig. 1 box 113) for selecting groups of configured traffic flows for transmission of data (fig. 1: CBR, VBR, ABR, UBR), the reference is silent on each of the schedulers being a Guaranteed Bandwidth Scheduler.

Regache teaches a Guaranteed Bandwidth Scheduler based upon minimum bandwidth guarantees (fig. 1, guarantee transmission of cells at a particular rate, col. 5 lines 53-57).

Therefore it would have been obvious to one of ordinary skill in the art, having both Shinohara and Regache before him/her and with the teachings [a] as shown by Shinohara, a method for transferring data through a packet switch while providing differentiates Quality-of-Service QoS guarantees to respective traffic flows, and [b] as shown by Regache, a Guaranteed Bandwidth Scheduler based upon minimum bandwidth guarantees, to be motivated to modify the system of Shinohara to incorporate within the third schedulers the Guaranteed Bandwidth

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Scheduler algorithm of Regache. This modification can be performed in software. This would improve the system of Shinohara by ensuring an equitable distribution of bandwidth to each of the QoS classes.

Response to Arguments

7. Applicant's arguments filed 11/26/2004 with respect to amended claims 1-10, 12-24, and 26-30 have been fully considered but they are not persuasive.

Regarding amended independent claims 1, 16, and 21, applicant contend that Shinohara does not teach, show, or suggest that the traffic flows should be group on a per-input basis (applicant: pg. 12 2nd full paragraph, pg. 13 2nd full paragraph, pg. 13 1st full paragraph). The examiner disagrees. As shown previously:

Shinohara teaches storing received data packets associated with said traffic flows in a respective input buffer (fig. 1 box 23) wherein each respective input buffer is associated with a particular input of the packet switch (fig. 1 box 21).

Shinohara teaches grouping said traffic flows within a respective input buffer on at least a QoS guarantee level (fig.

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1 box 24 25, CBR, VBR, ABR, UBR, col. 6 line 65 - col. 7 line 2).

Regarding dependent claims 7, 8, 18, 23, 24, the applicant maintains that these claims are allowable since they depend upon independent claims 1, 16, and 21 which should be allowable (applicant: pg. 16 2nd paragraph, pg. 17 3rd paragraph). The examiner disagrees that independent claims 1, 16, and 21 are allowable (see above).

8. Applicant's arguments, see pg. 17, filed 11/26/2004, with respect to 11 and 25 have been fully considered and are persuasive. The rejection of the claims has been withdrawn.

Allowable Subject Matter

9. Claims 11 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter.

Regarding claims 11 and 25, nothing in the prior art of the record teaches or fairly suggests the plurality of input

buffers' buffer capacity exceeds the respective plurality of output buffers' buffer capacity, in view of the teachings of Shinohara in combination with all the limitations listed in the claim.

Conclusion


10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (703) 306-5622. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ronald Abelson
Examiner
Art Unit 2666

2/17/05


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